

Terms of Reference

Implementation of a biological control pilot project with endemic arthropods in the agro-ecosystems of São Tomé and Príncipe

Título	Implementation of a biological control pilot project with endemic arthropods in the agro-ecosystems of São Tomé and Príncipe
Projeto	'Improving the integration of biodiversity in the agroforestry and fisheries sectors in São Tomé and Príncipe' financed by the GEF-IFAD fund
Tipo de contrato	Consultancy, Consultancy firm
Local de afetação	São Tomé and Príncipe
Data de início	October 2024

BACKGROUND

Located at the Gulf of Guinea, the archipelago of São Tomé and Príncipe (STP) consists of two islands and several islets. Renowned for its remarkable biodiversity, STP is home to a plethora of endemic species of flora and fauna. Many of these species are endangered and rely heavily on the preservation of their forest habitats. Nonetheless, STP's rich biodiversity is under threat from several significant factors, particularly impacting endangered species and requiring urgent conservation efforts. Despite ongoing environmental protection initiatives, challenges such as unsustainable practices, lack of knowledge, and other factors continue to hinder decisive action by both policymakers and the local population, hampering progress in environmental conservation.

São Tomé and Príncipe has used, and continues to use, a wide range of toxic chemicals, especially in agriculture. Recently, however, the government has shifted its focus toward organic farming practices. This transition aims to enhance the country's nutritional food security and ensure high-quality produce for both the local market and export.

Agriculture plays a crucial role in São Tomé and Príncipe's economy, contributing 20% to the Gross Domestic Product (GDP), accounting for 80% of export earnings, and providing over 60% of employment. Cocoa is a major driver of GDP, but agriculture also holds significant socio-cultural and economic value for the country. Currently, 40% of agricultural production is certified organic and targeted for export. To achieve 100% of organic production, it is vital to promote agroecological practices in horticulture and agroecosystems. This includes reducing reliance on agrochemicals and developing more diverse, resilient, and productive agricultural systems. In this effort, biological pest control emerges as a promising strategy to minimize dependency on agrochemicals within the agroforestry sector.

BirdLife, in collaboration with the CIBIO research centre, conducted a study to map arthropod communities with a focus on predator and pollinator groups. As part of the GEF-funded project 'Improving the integration of biodiversity in the agroforestry and fisheries sectors in São Tomé and Príncipe', the aim is to complement this work with an assessment of pest communities and their associated predators for a potential biological combination.

MAIN OBJECTIVE

BirdLife is looking to recruit an experienced consultant or team of consultants **to facilitate the implementation of a pilot project to promote the use of endemic and native arthropods for biological control in agroforestry systems in São Tomé and Príncipe.**

SCOPE OF WORK AND OUTPUTS/DELIVERABLES:

The consultant or team of consultants will be responsible for carrying out and submitting the following activities and products:

ACTIVITY (1)

- 1.1. Carry out a literature review of existing studies on agroecological practices with a focus on arthropods and align the work with ongoing actions in the country.
- 1.2. Consult the organisations involved and other stakeholders in the process of developing the products to be delivered under this consultancy, including for the purposes of pest mapping and benchmarking, capacity building, implementation and evaluation of the pilot project. The methodology to be applied should be as participatory as possible, involving farmers and agricultural cooperatives, research institutions (CIAT), and government authorities.
- 1.3. Mapping the current state of pest populations and benchmarking models for using arthropods in biological control in socio-ecological contexts similar with STP:
 - Conduct surveys and public consultations with farmers and agricultural cooperatives to assess the current state of pest populations and the presence of potential natural enemies (predators, parasitoids and pollinators) in the selected agro-ecosystems, as well as identifying complementary agro-ecological techniques already applied by the farmers.
 - Integrate the results of surveys and public consultations with the São Tomé pest species database of the Centre for Agronomic and Technological Research (CIAT).
 - Develop a benchmarking study on models for using endemic arthropods in the biological control of pests that are common or ecologically similar with those identified in the previous points and compare the aforementioned models in places with socio-ecological contexts similar to São Tomé and Príncipe.
 - Develop recommendations on priority pests and potential predatory insect species, integrating the results obtained in the ‘Study of Arthropod Communities in Agroecosystems of São Tomé with a specific focus on predator and pollinator functional groups’ developed by the CIBIO research centre.

PRODUCT (1)

(i) Report of the benchmarking study on models for the use of endemic arthropods in biological pest control. The report should include a comprehensive review of the existing scientific and technical literature on the use of arthropods in biological pest control and identification of success stories and lessons learnt in different regions of the world. It should also include the recommendation and technical data sheet of at least five models for using endemic arthropods and a detailed description of each model, including the species of arthropod used, type of pest controlled, implementation methods, and results achieved. Finally, a comparative analysis of the models identified based on criteria such as effectiveness, cost-benefit, environmental impact, and feasibility of implementation in São Tomé and Príncipe

ACTIVITY (2)**2. Develop a capacity-building strategy on sustainable agricultural practices and the importance of biological control:**

- Develop and implement workshops and training sessions for farmers and cooperative members on the importance of biological control and the identification of auxiliary insects. The training will also cover sustainable agricultural practices that promote biodiversity conservation while ensuring optimal agricultural productivity.

PRODUCT (2)

(i) Capacity-building plan, adapted to the various agroforestry and agricultural production systems, for the use of biological control techniques and agroecological practices. Special emphasis should be placed on training and strengthening small farmers and producers (considering the integration of gender equity) to adopt production practices that respect biodiversity: replacing pesticides with biological control practices and encouraging the adoption of management practices that are favourable to arthropods.

(ii) Report on the workshops and training sessions provided with documentation of the activities carried out, the results achieved and any other relevant aspect for evaluation and future references

ACTIVITY (3)**3.1. Provide technical assistance for the implementation, monitoring and evaluation of the pest-predator pilot project:**

- Coordinate the controlled capture and reproduction of arthropods for biological control in partnership with CIAT.
- Develop protocols for best practices in the mass reproduction and propagation of arthropods, in collaboration with CIAT and the selected farmers' cooperative(s).
- Formulate a strategy for the dispersal of arthropods in pilot fields to maximise the effectiveness of the agents introduced for pest control.
- Support and train partners in the regular monitoring of pest populations in the selected pilot fields to evaluate the impact of the biological control agents.
- Support the evaluation of the efficiency of the tested method based on yield and agricultural quality.
- Draft and oversee the approval process for the consultancy's deliverables, including methodological proposals and activity reports.

PRODUCT (3)

(i) Protocol for the implementation, monitoring and evaluation of the pilot project for the production and dispersal of endemic arthropods for pest control. The protocol should describe:

- Procedures for mass reproduction and propagation of endemic arthropods, describing the procedures and conditions necessary for rearing the species(es) in insectaria, as well as the methods for propagating and maintaining arthropod populations, and the hygiene and safety standards for the insectaria.
 - Monitoring and evaluation plan to assess the survival and dispersal of arthropods after their dispersal and the efficiency of arthropods in pest control.
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ACTIVITY (4)**4.1. Support the dissemination of results and draw up policy recommendations based on the successes and lessons learnt during the pilot project.**

- Support the creation of a favourable environment for disseminating the results to stakeholders and organising workshops, seminars and field visits to share experiences of the pilot project with farmers, cooperatives and other entities in the agricultural sector

PRODUCT (4)

(i) Final evaluation report of the tested method with policy recommendations, developed in collaboration with government authorities and relevant organisations. In addition to the conclusions of the pilot study, there should be answers to the following questions: Are arthropod-based pest control methods a viable alternative to chemical pesticides? What are the advantages and disadvantages of using arthropods for pest control? (e.g., production yields, health risks for producers and nearby communities, food safety).

PRODUCT (5)

(i) Final consultancy report summarising the activities carried out, constraints encountered, lessons learnt, recommendations and conclusions. Multimedia support elements and activity attendance lists should be included in the annexes.

DUTY STATION AND DURATION OF ASSIGNMENT

The interested company shall propose and submit a realistic proposal. A detailed budget proposal should be submitted with the application, covering all aspects of the consultancy, including personnel, travel, materials, and any other relevant expenses. Final deliverables should be submitted at the latest by December 2025.

TIMETABLE OF ACTIVITIES & PRODUCTS

Products	Year 1		Year 2		Year 3
	S1	S2	S1	S2	S1
(1) Benchmarking study report					
(2) Capacity building plan					
(3) Pilot project implementation, monitoring and evaluation protocol			*	*	*
(4) Final evaluation report of the tested method with policy recommendations					
(5) Final consultancy report					

* additional technical assistance period

SUPERVISING TEAM

- Joana Pereira, Research & Principle Projects Officer, BirdLife International STP
- Marquinha Martins, Sustainable Finance & Biodiversity Mainstreaming Officer, BirdLife International STP



EXPERT QUALIFICATION & PROFESSIONAL EXPERIENCE

- Proven experience in biological pest control projects, preferably using arthropods and/or agroforestry projects and sustainable agricultural practices.
- Experience in implementing pilot projects and facilitating participatory processes with farming communities, particularly involving behavior change strategies towards the adoption of agroecological techniques.
- Ability to draft and revise technical protocols, reports and public policy documents.
- Ability to draw up detailed strategic plans and implement practical, results-orientated solutions.
- Ability to communicate effectively with a variety of audiences and adapt approaches according to specific needs.
- Knowledge of project management, human resource management and team administration, as well as the context of conservation and agroforestry management in São Tomé and Príncipe.
- Written and spoken Portuguese. English (or Spanish) is an advantage
- Competent computer skills, particularly in the use of Microsoft Office Word, Excel, etc.

SUBMISSION OF PROPOSALS

Offerors must submit their application to saotomeprincipe@birdlife.org, including the following documents:

- Technical & Financial Proposals (2 distinct documents) to implement the assignment (maximum 8 months, with 2 years of additional service), including detailed costing per deliverable (in EUR, maximum of 37.500,00 EUR)
- Detailed Curriculum Vitae of all experts involved

All proposals must be submitted to the above address by 30 September 2024.

The above-mentioned documents, information and requirements are mandatory. Incomplete or non-fitting proposals will be rejected.